Taylor

OPERATING INSTRUCTIONS

R.F. SIGNAL GENERATOR TYPE 68 A/M Mk.2

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CONTENTS

General Information	2
Specification	3
Controls	4
Brief Circuit Description	5
Operation	6
Components List and Circuit Diagram	7

GENERAL INFORMATION

This Signal Generator is a compact, reliable, yet inexpensive mains operated signal generator, designed primarily for the radio and television service engineer.
The instrument covers the frequency range 100kHz to 240MHz in eight bands with a maximum output of 100mV into a 75 ohm load. Attenuation is provided by four 20 db steps and a continuously variable control. An r.f. level indicator monitors the r.f. voltage applied to the attenuator system. An unmodulated r.f. output is available or alternatively, an internal audio oscillator provides 30% sinewave amplitude modulation at 1000Hz. The output of the audio oscillator is available at the A.F. Output socket as an audio signal source of approximately 1V r.m.s. Facilities are provided for external modulation between 50Hz and 5kHz to be applied at the Ext. Mod./A.F. Output socket.

SPECIFICATION

Frequency Range:	100kHz to 240MHz in eight bands as follows: 100kHz to 300kHz — 10MHz to 30MHz 300kHz to 1000kHz — 30MHz to 55MHz 1MHz to 3MHz — 55MHz to 110MHz 3MHz to 10MHz — 110MHz to 240MHz
R. F. Calibration Accuracy:	±1% at 20°C
R. F. Output:	Continuously variable between 100mV r.m.s. ± 6db and approx. 1μV into 75Ω when the Set Level control is adjusted to set the meter pointer on the calibration mark.
Output Impedance:	75 ohms.
Modulation:	
Internal:	30% amplitude modulation at a nominal frequency of 1000Hz.
External:	An external signal between 50Hz and 5kHz may be applied with the instrument set to Ext. Mod.
A. F. Output:	The 1000Hz modulation signal of approz. 1V r.m.s. is available at the A.F. Output socket with the Function switch set to Int. Mod.
Power Supply:	100 to 125V, 200 to 260V at 48 to 62Hz. (Nominal tappings at 115V, 210V and 240V.) Power Consumption approximately 15W.
Dimensions:	359 × 232 × 178 mm ($14\frac{1}{8}$ × $9\frac{1}{8}$ × 7 in.)
Weight:	14 lb. (6·4 kg)
Accessories:	R.F. Lead fitted with connector and crocodile clips. The same r.f. connector can be used for the A.F. Input or Output.
Optional feature:	The instrument can be supplied with BNC sockets for for the R.F. and A.F. Output. If BNC sockets are fitted a BNC connector will be supplied.

CONTROLS

Frequency Range Switch:	This eight position switch selects one of the eight calibrated frequency ranges as required.
Set Frequency:	With the Frequency Range switch set to the appropriate range, the Set Frequency control enables the precise frequency required to be set. A slow motion drive provides smooth operation over the whole frequency range and the directly coupled pointer sweeps all eight well-defined scales providing a precise setting of the desired frequency.
Function:	A four position switch marked Off, CW, Int. Mod. and Ext. Mod. When set to any position except Off, mains voltage is applied to the instrument and the panel mounted neon is illuminated. The facilities available are as follows:
CW	When set to this position an unmodulated r.f. signal is available.
Int. Mod.	An r.f. carrier modulated by the 1000Hz internal oscillator to a depth of 30% is available when set to this position. The A.F. Ouput is also available at the A.F. Output socket when set to this position.
Ext. Mod.	At this position an external modulation signal between 50Hz and 5kHz may be applied to the Ext. Mod./A.F. Output.
R.F. Output:	The r.f. output is available at this socket. When terminated with a 75Ω termination, the attenuator set to odb and the R.F. control set fully clockwise, the output voltage is approximately 100mV.
Attenuator (Coarse):	Provides a total of 80db attenuation in four 20db steps at 75 ohm.
R.F. Output (Fine control):	This control is a non-inductive potentiometer providing a continuously variable output.
Set R.F. Level:	This control provides adjustment of the r.f. voltage applied to the attenuators.
Output Level Indicator:	Monitors the r.f. voltage applied to the attenuators.

CONTROLS

Set A.F. Level:	A 100kΩ potentiometer which provides a variable 1000Hz a.f. output voltage with a maximum of 1V to the A.F. Output socket.
Ext Mod./A.F. Output socket:	With the Function switch set to Int. Mod. the 1000Hz modulation signal is available at this socket. With the Function switch set to Ext. Mod. an external modulation signal may be applied to this socket, frequency between 50Hz and 5kHz.

BRIEF CIRCUIT DESCRIPTION

A double triode 12AT7 is used for the r.f. oscillator. One section is connected as a Hartley oscillator covering the frequency range 100kHz to 30MHz. The other section is connected as a Colepitts oscillator for the frequency range 30MHz to 240MHz. An unmodulated r.f. output is available or an internal audio oscillator provides 30% sinewave amplitude modulation at 1000Hz. Facilities are also available for external modulation to be applied between 50Hz and 5kHz.
The output of the audio oscillator is also available as an audio signal source giving an audio frequency output of approximately 1V r.m.s. at the A.F. Output socket.

OPERATION

First check that the mains transformer is set for the correct nominal a.c. supply voltage before connecting the instrument to the mains supply available. To do this, it will be necessary to remove the instrument from the case. Remove the four screws and washers from the front panel. Lay the instrument face downwards and lift off the case. To adjust the voltage to the mains supply available, the red plug should be inserted into the sockets most nearly corresponding to the actual voltage available, i.e.

For 100 to 125V use the 115V socket
For 200 to 220V use the 210V socket
For 230 to 250V use the 240V socket

The power consumption is approximately 15W.

The mains supply lead has three cores and these should be connected as follows:

Brown to Live
Blue to Neutral
Green/Yellow to Earth

Connect the instrument to the mains supply and switch on. The instrument is now ready for operation as follows:

(a) Turn the Function switch away from the Off position to apply mains supply to the instrument. The panel mounted neon lamp will illuminate to indicate that mains supply is available. If the instrument is correctly connected to the mains supply, but the neon does not light after switching on, the fuse, which is connected in series with the primary transformer, should be checked. To do this, the instrument should be switched off and removed from its case. The fuse is mounted inside the red Voltage Selector plug. To replace the fuse remove the Plug and gently ease off the red polythene cover. Replace the fuse by a spare 1A fuse Type R361 (C2) obtainable from Ariel Pressings, Wollaton Road, Beeston, Notts. U.K.

(b) The required frequency may now be set using the Frequency Range switch and the Set Frequency control.

(c) Set the Function switch and Attenuator as desired.

(d) The r.f. output lead supplied with each instrument may be used to connect the Signal Generator to the equipment under test via the r.f. socket.

NOTE: Precautions must always be taken to ensure that the direct r.f. output is not connected to a live point as this could result in damage to the attenuator. If it is essential to make connection at a potential above earth, a suitable capacitor of correct rating must be connected between the r.f. output socket and the circuit under test.

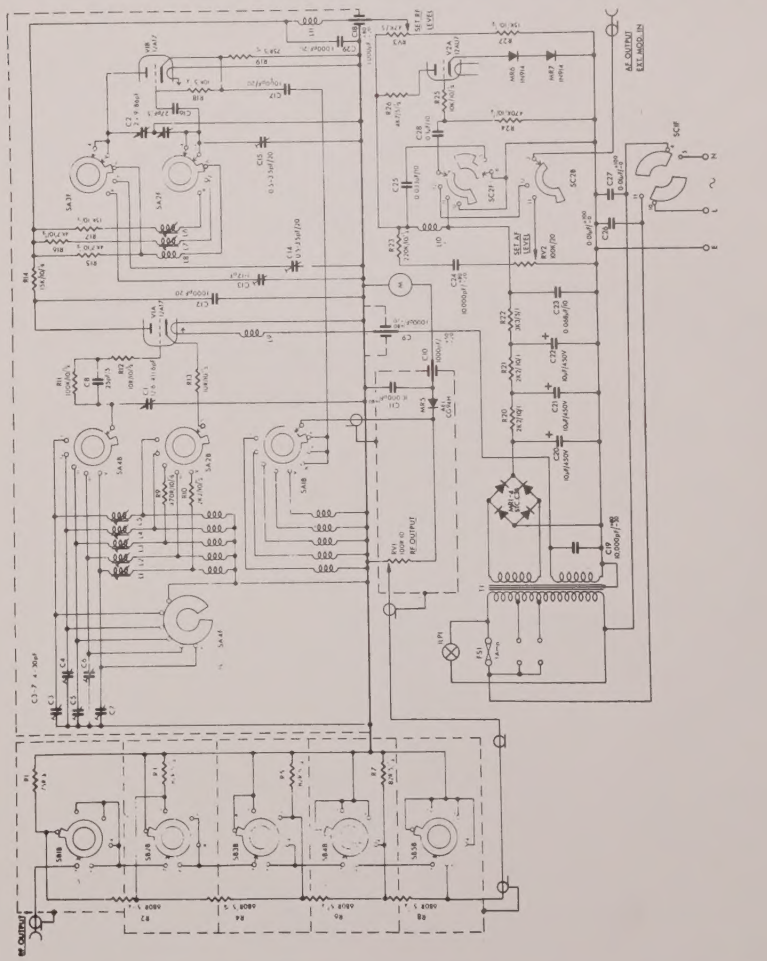
Special precautions must always be taken when servicing an ac/dc receiver. Ensure that the mains plug connected to the equipment under test, is inserted in such a manner that the chassis is earthy. To check this, connect a meter (set at a suitable range for the mains supply available) between chassis and earth (or neutral). If the mains voltage is indicated on the meter when the set is switched on, reverse the mains supply to the equipment.

COMPONENTS LIST

Circuit Ref No.	Description	
R1	75Ω	± 5% ¼W
R2	680Ω	± 5% ¼W
R3	82Ω	± 5% ¼W
R4	680Ω	± 5% ¼W
R5	82Ω	± 5% ¼W
R6	680Ω	± 5% ¼W
R7	82Ω	± 5% ¼W
R8	680Ω	± 5% ¼W
R9	470Ω	± 10% ¼W
R10	2·2kΩ	± 10% ¼W
R11	100kΩ	± 10% ¼W
R12	10Ω	± 10% ¼W
R13	10Ω	± 10% ¼W
R14	15kΩ	± 10% ¼W
R15	4·7kΩ	± 10% ¼W
R16	4·7kΩ	± 10% ¼W
R17	15kΩ	± 10% ¼W
R18	10kΩ	± 5% ¼W
R19	75Ω	± 5% ¼W
R20	2·2kΩ	± 10% 1W
R21	2·2kΩ	± 10% 1W
R22	3·3kΩ	± 5% 1W
R23	220kΩ	± 10% ¼W
R24	470kΩ	± 10% ¼W
R25	10kΩ	± 10% ¼W
R26	4·7kΩ	± 5% ¼W
R27	15kΩ	± 10% ¼W
RV1	100Ω	± 10% R.F. OUTPUT
RV2	100kΩ	± 20% SET A.F. LEVEL
RV3	47kΩ	± 5% SET R.F. LEVEL
C1	12·6-411·6pF	
C2	2 × 9-86pF	
C3	4-30pF	

Circuit Ref No.	Description
C4	4-30pF
C5	4-30pF
C6	4-30pF
C7	4-30pF
C8	25pF ± 5%
C9	1000pF + 80% −20%
C10	1000pF + 50% −20%
C11	10,000pF + 80% −20%
C12	1000pF ± 20%
C13	1-12pF
C14	0·5-3·5pF ± 20%
C15	0·5-3·5pF ± 20%
C16	27pF ± 5%
C17	1000pF ± 20%
C18	1000pF + 80% −20%
C19	10,000pF + 80% −20%
C20	10μF 450V
C21	10μF 450V
C22	10μF 450V
C23	0·068μF ± 10%
C24	10,000pF + 80% −20%
C25	0·033μF ± 10%
C26	0·01μF + 100% −0%
C27	0·01μF + 100% −0%
C28	0·1μF ± 10%
C29	1000pF ± 20%
MR1-4	STC C3B
MR5	AEI CG94H
MR6	IN914
MR7	IN914
FS1	Fuse 1A
V1	12AT7
V2	12AU7

CIRCUIT DIAGRAM



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